



Complete Summary

TITLE

Pneumonia: percent of immunocompetent patients with community-acquired pneumonia who receive an initial antibiotic regimen during the first 24 hours that is consistent with current guidelines.

SOURCE(S)

Specifications manual for national hospital quality measures, version 1.04. Centers for Medicare and Medicaid Services (CMS), Joint Commission on Accreditation of Healthcare Organizations (JCAHO); 2005 Aug. various p.

Measure Domain

PRIMARY MEASURE DOMAIN

Process

The validity of measures depends on how they are built. By examining the key building blocks of a measure, you can assess its validity for your purpose. For more information, visit the [Measure Validity](#) page.

SECONDARY MEASURE DOMAIN

Does not apply to this measure

Brief Abstract

DESCRIPTION

This measure* is used to assess the percent of immunocompetent patients with community-acquired pneumonia who receive an initial antibiotic regimen during the first 24 hours that is consistent with current guidelines.

*This is a CMS only measure.

RATIONALE

The current North American antibiotic guidelines for community-acquired pneumonia (CAP) in immunocompetent patients are from the Centers for Disease Control and Prevention (CDC), the Infectious Diseases Society of America (IDSA), the Canadian Infectious Disease Society/Canadian Thoracic Society (CIDS/CTS), and the American Thoracic Society (ATS). All four reflect that Streptococcus

pneumoniae is the most common cause of CAP, that treatment that covers "atypical" pathogens (e.g., Legionella species, Chlamydia pneumoniae, Mycoplasma pneumoniae) can be associated with improved survival, and that the prevalence of antibiotic-resistant S. pneumoniae is increasing.

The Centers for Medicare & Medicaid Services (CMS) convened a conference of guideline authors, including Julie Gerberding, MD (CDC), John Bartlett, MD (IDSA), Ronald Grossman, MD (CIDS/CTS), and Michael Niederman, MD (ATS), to reach consensus on the antibiotic regimens that could be considered consistent with all four organizations' guidelines. These regimens are reflected in this measure, and in the Pneumonia Antibiotic Consensus Recommendation located directly behind the measure information form (refer to the original measure documentation for details).

PRIMARY CLINICAL COMPONENT

Pneumonia; antibiotic selection

DENOMINATOR DESCRIPTION

Pneumonia patients 18 years of age and older (see the related "Denominator Inclusions/Exclusions" field in the Complete Summary)

NUMERATOR DESCRIPTION

Pneumonia patients who received an initial antibiotic regimen* consistent with current guidelines during the first 24 hours of their hospitalization

*Refer to the original measure documentation for specific antibiotic regimens.

Evidence Supporting the Measure

EVIDENCE SUPPORTING THE CRITERION OF QUALITY

- A clinical practice guideline or other peer-reviewed synthesis of the clinical evidence
- A formal consensus procedure involving experts in relevant clinical, methodological, and organizational sciences
- One or more research studies published in a National Library of Medicine (NLM) indexed, peer-reviewed journal

NATIONAL GUIDELINE CLEARINGHOUSE LINK

- [Update of practice guidelines for the management of community-acquired pneumonia in immunocompetent adults.](#)

Evidence Supporting Need for the Measure

NEED FOR THE MEASURE

Variation in quality for the performance measured

EVIDENCE SUPPORTING NEED FOR THE MEASURE

Bartlett JG, Dowell SF, Mandell LA, File Jr TM, Musher DM, Fine MJ. Practice guidelines for the management of community-acquired pneumonia in adults. Infectious Diseases Society of America. Clin Infect Dis2000 Aug; 31(2):347-82. [218 references] [PubMed](#)

Butler JC, Hofmann J, Cetron MS, Elliott JA, Facklam RR, Breiman RF. The continued emergence of drug-resistant Streptococcus pneumoniae in the United States: an update from the Centers for Disease Control and Prevention's Pneumococcal Sentinel Surveillance System. J Infect Dis1996 Nov; 174(5):986-93. [PubMed](#)

Fine MJ, Smith MA, Carson CA, Mutha SS, Sankey SS, Weissfeld LA, Kapoor WN. Prognosis and outcomes of patients with community-acquired pneumonia. A meta-analysis. JAMA1996 Jan 10; 275(2):134-41. [PubMed](#)

Gleason PP, Meehan TP, Fine JM, Galusha DH, Fine MJ. Associations between initial antimicrobial therapy and medical outcomes for hospitalized elderly patients with pneumonia. Arch Intern Med1999 Nov 22; 159(21):2562-72. [PubMed](#)

Heffelfinger JD, Dowell SF, Jorgensen JH, Klugman KP, Mabry LR, Musher DM, Plouffe JF, Rakowsky A, Schuchat A, Whitney CG. Management of community-acquired pneumonia in the era of pneumococcal resistance: a report from the Drug-Resistant Streptococcus pneumoniae Therapeutic Working Group. Arch Intern Med2000 May 22; 160(10):1399-408. [PubMed](#)

Houck PM, MacLehose RF, Niederman MS, Lowery JK. Empiric antibiotic therapy and mortality among medicare pneumonia inpatients in 10 western states: 1993, 1995, and 1997. Chest2001 May; 119(5):1420-6. [PubMed](#)

Mandell LA, Bartlett JG, Dowell SF, File TM Jr, Musher DM, Whitney C. Update of practice guidelines for the management of community-acquired pneumonia in immunocompetent adults. Clin Infect Dis2003 Dec 1; 37(11):1405-33. [235 references] [PubMed](#)

Mandell LA, Marrie TJ, Grossman RF, Chow AW, Hyland RH. Canadian guidelines for the initial management of community-acquired pneumonia: an evidence-based update by the Canadian Infectious Diseases Society and the Canadian Thoracic Society. The Canadian Community-Acquired Pneumonia Working Group. Clin Infect Dis2000 Aug; 31(2):383-421. [PubMed](#)

Niederman MS, Mandell LA, Anzueto A, Bass JB, Broughton WA, Campbell GD, Dean N, File T, Fine MJ, Gross PA, Martinez F, Marrie TJ, Plouffe JF, Ramirez J, Sarosi GA, Torres A, Wilson R, Yu VL. Guidelines for the management of adults with community-acquired pneumonia. Diagnosis, assessment of severity, antimicrobial therapy, and prevention. Am J Respir Crit Care Med2001 Jun; 163(7):1730-54. [PubMed](#)

State of Use of the Measure

STATE OF USE

Current routine use

CURRENT USE

Collaborative inter-organizational quality improvement
Internal quality improvement
Pay-for-performance

Application of Measure in its Current Use

CARE SETTING

Hospitals

PROFESSIONALS RESPONSIBLE FOR HEALTH CARE

Measure is not provider specific

LOWEST LEVEL OF HEALTH CARE DELIVERY ADDRESSED

Single Health Care Delivery Organizations

TARGET POPULATION AGE

Age greater than or equal to 18 years

TARGET POPULATION GENDER

Either male or female

STRATIFICATION BY VULNERABLE POPULATIONS

Unspecified

Characteristics of the Primary Clinical Component

INCIDENCE/PREVALENCE

Unspecified

ASSOCIATION WITH VULNERABLE POPULATIONS

See "Burden of Illness" field.

BURDEN OF ILLNESS

In the United States (U.S.) pneumonia is the sixth most common cause of death. From 1979-1994, the overall rates of death due to pneumonia and influenza increased by 59%. Much of this increase is due to a greater population of persons aged 65 years or older, and a changing epidemiology of pneumonia, including a greater proportion of the population with underlying medical conditions at increased risk of respiratory infection.

EVIDENCE FOR BURDEN OF ILLNESS

Bartlett JG, Dowell SF, Mandell LA, File Jr TM, Musher DM, Fine MJ. Practice guidelines for the management of community-acquired pneumonia in adults. Infectious Diseases Society of America. Clin Infect Dis 2000 Aug; 31(2):347-82. [218 references] [PubMed](#)

UTILIZATION

Pneumonia accounts for nearly 600,000 Medicare patient hospitalizations utilizing more than 4.5 million inpatient days each year. In 1993, more than \$3.5 billion was spent on inpatient care of Medicare patients with pneumonia. Pneumonia is also the principal reason for more than 500,000 emergency department visits by Medicare patients each year. The incidence of pneumonia increases with age, and more than 90 percent of deaths due to this condition are in the population aged 65 and older.

More than 1.1 million hospitalizations due to pneumonia each year in the U.S.

EVIDENCE FOR UTILIZATION

Bartlett JG, Dowell SF, Mandell LA, File Jr TM, Musher DM, Fine MJ. Practice guidelines for the management of community-acquired pneumonia in adults. Infectious Diseases Society of America. Clin Infect Dis 2000 Aug; 31(2):347-82. [218 references] [PubMed](#)

Niederman MS, Mandell LA, Anzueto A, Bass JB, Broughton WA, Campbell GD, Dean N, File T, Fine MJ, Gross PA, Martinez F, Marrie TJ, Plouffe JF, Ramirez J, Sarosi GA, Torres A, Wilson R, Yu VL. Guidelines for the management of adults with community-acquired pneumonia. Diagnosis, assessment of severity, antimicrobial therapy, and prevention. Am J Respir Crit Care Med 2001 Jun; 163(7):1730-54. [PubMed](#)

COSTS

See "Utilization" field.

Institute of Medicine National Healthcare Quality Report Categories

IOM CARE NEED

Getting Better

IOM DOMAIN

Effectiveness

Data Collection for the Measure

CASE FINDING

Users of care only

DESCRIPTION OF CASE FINDING

Discharges, 18 years of age and older, with a principal diagnosis of pneumonia or a principal diagnosis of septicemia or respiratory failure (acute or chronic) and an other diagnosis code of pneumonia

DENOMINATOR SAMPLING FRAME

Patients associated with provider

DENOMINATOR INCLUSIONS/EXCLUSIONS

Inclusions

Discharges with an International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM) Principal Diagnosis Code of pneumonia or ICD-9-CM Principal Diagnosis Code of septicemia or respiratory failure (acute or chronic) and an ICD-9-CM Other Diagnosis Code of pneumonia as defined in Appendix A of the original measure documentation

Exclusions

- Patients received in transfer from another acute care or critical access hospital, including another emergency department
- Patients who have no Working Diagnosis of pneumonia at the time of admission
- Patients receiving Comfort Measures Only
- Patients who do not receive antibiotics during hospitalization or within 36 hours (2160 minutes) after arrival at the hospital
- Patients who are Compromised as defined in the Data Dictionary of the original measure documentation
- Patients involved in protocols or clinical trials
- Patients with Healthcare Associated Pneumonia (PN)

DENOMINATOR (INDEX) EVENT

Clinical Condition

Institutionalization

Therapeutic Intervention

DENOMINATOR TIME WINDOW

Time window is a single point in time

NUMERATOR INCLUSIONS/EXCLUSIONS

Inclusions

Pneumonia patients who received an initial antibiotic regimen* consistent with current guidelines during the first 24 hours of their hospitalization

*Refer to the original measure documentation for specific antibiotic regimens.

Exclusions

None

NUMERATOR TIME WINDOW

Fixed time period

DATA SOURCE

Administrative and medical records data

LEVEL OF DETERMINATION OF QUALITY

Individual Case

PRE-EXISTING INSTRUMENT USED

Unspecified

Computation of the Measure

SCORING

Rate

INTERPRETATION OF SCORE

Better quality is associated with a higher score

ALLOWANCE FOR PATIENT FACTORS

Unspecified

STANDARD OF COMPARISON

External comparison at a point in time
External comparison of time trends
Internal time comparison

Evaluation of Measure Properties

EXTENT OF MEASURE TESTING

In order to test the reliability of the Centers for Medicare and Medicaid Services (CMS) data abstraction in the 7th Statement of Work (SoW), 80 medical records were randomly selected each month from 2000 to 2001. Using 12 months of data, we calculated the kappa statistic and total agreement rate (AR) for abstraction (Kappa = 0.80, AR = 90.6%).

EVIDENCE FOR RELIABILITY/VALIDITY TESTING

Bratzler DW. (Principal Clinical Coordinator, Oklahoma Foundation for Medical Quality, Oklahoma City). Personal communication. 2003 Mar 5. 1p.

Identifying Information

ORIGINAL TITLE

PN-6: initial antibiotic selection for community-acquired pneumonia (CAP) in immunocompetent patients.

MEASURE COLLECTION

[National Hospital Quality Measures](#)

MEASURE SET NAME

[Pneumonia](#)

SUBMITTER

Centers for Medicare & Medicaid Services
Joint Commission on Accreditation of Healthcare Organizations

DEVELOPER

Centers for Medicare and Medicaid Services/Joint Commission on Accreditation of Healthcare Organizations

ENDORSER

National Quality Forum

INCLUDED IN

Hospital Compare
Hospital Quality Alliance
National Healthcare Disparities Report (NHDR)
National Healthcare Quality Report (NHQR)

ADAPTATION

Measure was not adapted from another source.

RELEASE DATE

2000 Aug

REVISION DATE

2005 Aug

MEASURE STATUS

Please note: This measure has been updated. The National Quality Measures Clearinghouse is working to update this summary.

SOURCE(S)

Specifications manual for national hospital quality measures, version 1.04. Centers for Medicare and Medicaid Services (CMS), Joint Commission on Accreditation of Healthcare Organizations (JCAHO); 2005 Aug. various p.

MEASURE AVAILABILITY

The individual measure, "PN-6: Initial Antibiotic Selection for Community-Acquired Pneumonia (CAP) in Immunocompetent Patients," is published in "Specifications Manual for National Hospital Quality Measures." This document is available from the [Joint Commission on Accreditation of Healthcare Organizations \(JCAHO\) Web site](#). Information is also available from the [Centers for Medicare & Medicaid Services \(CMS\) Web site](#). Check the JCAHO Web site and CMS Web site regularly for the most recent version of the specifications manual and for the applicable dates of discharge.

COMPANION DOCUMENTS

The following are available:

- A software application designed for the collection and analysis of quality improvement data, the CMS Abstraction and Reporting Tool (CART), is available from the [CMS CART Web site](#). Supporting documentation is also available. For more information, e-mail CMS PROINQUIRIES at proinquiries@cms.hhs.gov.
- Joint Commission on Accreditation of Healthcare Organizations (JCAHO). A comprehensive review of development and testing for national implementation of hospital core measures. Oakbrook Terrace (IL): Joint

- Commission on Accreditation of Healthcare Organizations (JCAHO); 40 p. This document is available from the [JCAHO Web site](#).
- Joint Commission on Accreditation of Healthcare Organizations (JCAHO). Attributes of core performance measures and associated evaluation criteria. Oakbrook Terrace (IL): Joint Commission on Accreditation of Healthcare Organizations (JCAHO); 5 p. This document is available from the [JCAHO Web site](#).
 - Hospital compare: a quality tool for adults, including people with Medicare. [internet]. Washington (DC): U.S. Department of Health and Human Services; 2005 [updated 2005 Sep 1]; [cited 2005 Apr 15]. This is available from the [Medicare Web site](#).

NQMC STATUS

This NQMC summary was completed by ECRI on January 6, 2003. The information was verified by the Centers for Medicare/Medicaid Services on March 14, 2003. This NQMC summary was updated by ECRI on October 24, 2005. The information was verified by the measure developer on December 7, 2005.

COPYRIGHT STATEMENT

The Specifications Manual for National Hospital Quality Measures [Version 1.04, August, 2005] is the collaborative work of the Centers for Medicare & Medicaid Services and the Joint Commission on Accreditation of Healthcare Organizations. The Specifications Manual is periodically updated by the Centers for Medicare & Medicaid Services and the Joint Commission on Accreditation of Healthcare Organizations. Users of the Specifications Manual for National Hospital Quality Measures should periodically verify that the most up-to-date version is being utilized.

© 2006 National Quality Measures Clearinghouse

Date Modified: 9/25/2006

FIRSTGOV

